

III. Remarks

A. Status of the Application

Claims 1-6, 8-12 and 23-28 are pending herein.

Favorable consideration and allowance of claims 1-6, 8-12 and 23-28 in light of the following remarks are respectfully requested.

B. Rejections under 35 U.S.C. §103(a)

Claims 1-6 stand rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,417,816 to Morris et al. ("Morris '816") in view of U.S. Patent No. 5,135,577 to Brothers ("Brothers '577"). This rejection is respectfully traversed.

Claim 1 is in independent form and is directed to a method for sealing casing in a borehole. The method of claim 1 includes preparing a sealing composition comprising a latex sealant selected from styrene butadiene copolymer latex, styrene butadiene acrylonitrile copolymer latex, vinyl acetate homopolymer latex, vinyl acetate acrylate copolymer latex, carboxylated styrene-butadiene copolymer latex, carboxylated acrylic copolymer latex and nitrile latex; placing the sealing composition between the casing and the borehole; placing a heating tool in the casing; and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition.

Each of claims 2-6 depends directly or indirectly from claim 1 and therefore include at least the foregoing elements.

Morris '816 discloses a method of cementing well casing in which after the borehole of a well is drilled to a desired depth, small diameter pipe having scratchers mounted on its outer surface is run into the well and moved vigorously while circulating a liquid to remove drilling cuttings and mud filter cake from the borehole wall through an interval to be cemented. A liquid sealing material, ordinarily a hydraulic cement, is displaced down the tubing to fill the borehole of the well above the level of the interval to be cemented. Movement of the small diameter pipe is continued while the sealing liquid is displaced into the well to reduce channeling of the sealing material. The small diameter pipe is then pulled from the well and casing is lowered into the

desired position in the well. The sealing liquid is then allowed to set to form a solid material.

Setting of the sealing material may be triggered by heating or radiation. (Abstract).

Contrary to the method of claim 1, Morris '816 does not disclose or suggest preparing a sealing composition that includes a latex sealant and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of a latex sealant-containing sealing composition at the location of the heating tool. In fact, Morris '816 discloses at Column 5, lines 14-16 that:

"If a resin-forming liquid such as an acrylonitrile monomer is used, polymerization can be accelerated by gamma-ray emanations."

Accordingly, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition can be accelerated by irradiating the composition with gamma radiation.

In the current Office Action, the Examiner has acknowledged that Morris '816 does not disclose a sealing composition that comprises a latex sealant from the group of latex sealants recited in claim 1. (Office Action, page 2). It appears that the Examiner is relying on Brothers '577 for disclosure of a composition that includes a cement slurry and a latex sealant such as those recited in claim 1, alleging that "it would have been obvious . . . to modify the method taught by Morris et al to include the sealing composition of Brothers." Applicants respectfully traverse this interpretation and application of Morris '816 and Brothers '577.

Brothers '577 describes cement compositions and methods of use for cementing oil and gas and/or geothermal wells which reduce thermal thinning of slurries at elevated downhole temperatures. To combat thermal thinning, latex is added to a cement slurry without a latex stabilizing surfactant resulting in a slurry having low mixing viscosity and good solids suspension properties at downhole temperatures. (Abstract).

Contrary to the method of claim 1, Brothers '577 does not disclose or suggest preparing a sealing composition that includes a latex sealant and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of a latex sealant-containing sealing composition at the location of the heating tool. In addition, while Brothers '577 discloses that latex can be added to a cement slurry to reduce thermal thinning of the cement slurry at elevated

downhole temperatures, Brothers '577 does not disclose or suggest that heating or irradiating such a slurry will accelerate the setting thereof. In fact, since Brothers '577 discloses compositions that are specially designed for reducing thermal thinning of slurries used in cementing oil and gas and/or geothermal wells having elevated downhole temperatures, Brothers '577 teaches away from a method such as the method of claim 1, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a sealing composition at the location of the heating tool. Consequently, one of ordinary skill in the art would not be motivated to place a heating tool in casing containing the compositions according to Brothers '577 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool.

To sustain the present rejection of claims 1-6 under 35 U.S.C. § 103(a), a prima facie case of obviousness must be established. MPEP § 2142 provides that a prima facie case of obviousness requires three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all of the claim limitations. In the present case, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to independent claim 1, nor the claims dependent thereon.

1. *There is no suggestion or motivation to modify the references or to combine reference teachings.*

As discussed above, Morris '816 describes a method of cementing well casing with a liquid sealing composition. Morris '816 teaches that the setting of a hydraulic cement sealing composition can be accelerated by heating the composition and that the setting of a resin-containing or non-cementitious sealing composition can be accelerated by irradiating the composition with gamma radiation. Morris '816 does not disclose or suggest preparing a sealing composition that includes a latex sealant and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of a latex sealant-containing sealing composition at the location of the heating tool. Indeed, consistent with the disclosure of Morris '816, one of

ordinary skill in the art would be motivated to irradiate a latex containing sealing composition to accelerate the setting thereof.

Brothers '577 describes cement compositions and methods of use for cementing oil and gas and/or geothermal wells which reduce thermal thinning of slurries at elevated downhole temperatures. Brothers '577 does not disclose or suggest preparing a sealing composition that includes a latex sealant and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of the sealing composition at the location of the heating tool. Instead, the compositions described by Brothers '577 are specially designed to overcome the problem of thermal thinning at elevated downhole temperatures and one of ordinary skill in the art would not be motivated to further heat such compositions by placing a heating tool in casing containing the compositions and operating the heating tool to accelerate the setting of the compositions.

Moreover, there is no suggestion or motivation to combine the disclosures of Morris '816 and Brothers '577. As noted above, Brothers '577 teaches away from a method such as the method of claim 1, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a sealing composition at the location of the heating tool. Consequently, one of ordinary skill in the art would not be motivated to place a heating tool in casing containing the compositions according to Brothers '577 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool. In addition, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition, such as a latex containing sealing composition can be accelerated by irradiating the composition with gamma radiation rather than by operating a heating tool to heat the sealing composition.

Accordingly, one of ordinary skill in the art would not be motivated to combine Morris '816 and Brothers '577. Yet, even if such a combination could be made, the result would not be the subject matter of any of claims 1-6.

2. *There is no reasonable expectation of success.*

As noted above, Brothers '577 teaches away from a method such as the method of claim 1, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a sealing composition at the location of the heating tool. Consequently, one of ordinary skill in the

art would not expect that placing a heating tool in casing containing the compositions according to Brothers '577 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool would be successful. In addition, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition, such as a latex sealant-containing sealing composition can be accelerated by irradiating the composition with gamma radiation rather than by operating a heating tool to heat the sealing composition. Accordingly, one of ordinary skill in the art would not expect that operating a heating tool to heat a latex sealant-containing sealing composition would be successful.

3. *The prior art references do not teach or suggest all the claim limitations.*

Neither Morris '816 nor Brothers '577, alone or in combination, discloses, motivates or suggests each and every element of any of claims 1-6.

None of claims 1-6 have been rejected under any provision of 35 USC § 102 over Morris '816 or Brothers '577. Thus, it appears that the Examiner would be in agreement that neither Morris '816 nor Brothers '577 alone discloses, motivates or suggests each and every element of the rejected claims. Accordingly, the third criteria of a *prima facie* case of obviousness can only be satisfied if a combination of Morris '816 and Brothers '577 would disclose, motivate or suggest all of the limitations of the presently rejected claims.

However, as discussed above, there is no motivation or suggestion for combining the disclosures of Morris '816 and Brothers '577. Furthermore, Applicants submit that even if motivation or suggestion could be found for combining the disclosures of Morris '816 and Brothers '577, the resulting combination would not disclose, motivate or suggest each and every element of claims 1-6.

For example, a combination of Morris '816 and Brothers '577 would not disclose, motivate or suggest the method of claim 1, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a latex sealant containing sealing composition at the location of the heating tool. Brothers '577 describes compositions that are specially designed to overcome the problem of thermal thinning at elevated downhole temperatures and one of ordinary skill in the art would not be motivated to further heat such compositions by placing a

heating tool in casing containing the compositions and operating the heating tool to accelerate the setting of the compositions. In addition, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition, such as a latex sealant-containing sealing composition can be accelerated by irradiating the composition with gamma radiation rather than by operating a heating tool to heat the sealing composition.

Accordingly, even if a combination of Morris '816 and Brothers '577 were possible, the resulting combination would not disclose, motivate or suggest the method of claim 1, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a latex sealant-containing sealing composition at the location of the heating tool.

In view of the foregoing, Applicants submit that Morris '816 and Brothers '577, either alone or in combination, fail to satisfy each of the three requirements of a *prima facie* case of obviousness. Failure to satisfy even one of the requirements negates the *prima facie* case. Accordingly, Applicants submit that the rejection of claims 1-6 under 35 U.S.C. § 103(a) over Morris '816 and Brothers '577 is improper and should be withdrawn.

Claims 9, 10 and 23 stand rejected under 35 U.S.C. §103(a) over Morris '816 in view of U.S. Patent No. 4,489,785 to Cole ("Cole '785"). This rejection is respectfully traversed.

Claim 9 is in independent form and is directed to a method for sealing casing in a borehole. The method of claim 9 includes preparing a sealing composition comprising an epoxy liquid comprising resin, associated hardener and inert filler material; placing the sealing composition between the casing and the borehole; placing a heating tool in the casing; and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition.

Each of claims 10 and 23 depends directly from claim 9 and therefore includes at least the foregoing elements.

Morris '816 discloses a method of cementing well casing in which after the borehole of a well is drilled to a desired depth, small diameter pipe having scratchers mounted on its outer surface is run into the well and moved vigorously while circulating a liquid to remove drilling cuttings and mud filter cake from the borehole wall through an interval to be cemented. A liquid

sealing material, ordinarily a hydraulic cement, is displaced down the tubing to fill the borehole of the well above the level of the interval to be cemented. Movement of the small diameter pipe is continued while the sealing liquid is displaced into the well to reduce channeling of the sealing material. The small diameter pipe is then pulled from the well and casing is lowered into the desired position in the well. The sealing liquid is then allowed to set to form a solid material. Setting of the sealing material may be triggered by heating or radiation. (Abstract).

Contrary to the method of claim 9, Morris '816 does not disclose or suggest preparing a sealing composition that includes an epoxy liquid comprising resin, associated hardener and inert filler material and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of an epoxy resin-containing sealing composition at the location of the heating tool. In fact, Morris '816 discloses at Column 5, lines 14-16 that:

"If a resin-forming liquid such as an acrylonitrile monomer is used, polymerization can be accelerated by gamma-ray emanations."

Accordingly, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition can be accelerated by irradiating the composition with gamma radiation.

In the current Office Action, the Examiner has acknowledged that Morris '816 does not disclose a sealing composition that comprises an epoxy liquid comprising resin, associated hardener, and inert filler material as recited in claim 9. (Office Action, page 4). It appears that the Examiner is relying on Cole '785 for disclosure of a sealing composition that comprises an epoxy liquid comprising resin, associated hardener, and inert filler material such as recited in claim 9, alleging that "it would have been obvious . . . to modify the sealing composition taught by Morris et al to include the composition of Cole." Applicants respectfully traverse this interpretation and application of Morris '816 and Cole '785.

Cole '785 describes a method of sealing a conduit within a subterranean formation utilizing an epoxy resin composition. (Col. 2, lines 3-5). The epoxy resin composition includes epoxy resin, a curing or hardening agent, a liquid diluent, an optional coupling agent and a solid diluent. (Col. 2, lines 20-23).

Contrary to the method of claim 9, Cole '785 does not disclose or suggest preparing a sealing composition that includes an epoxy liquid comprising resin, associated hardener and inert filler material and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of such a sealing composition at the location of the heating tool. Rather, Cole '785 describes a method of sealing conduit within a subterranean formation using an epoxy resin composition in which the epoxy resin composition is heated by the subterranean formation and the curing reaction to a temperature above 140°F. at which temperature the composition begins more active polymerization. (Col. 5, lines 13-17).

In addition, while Cole '785 discloses a method of sealing a conduit within a subterranean formation utilizing an epoxy resin composition that includes epoxy resin, a curing or hardening agent, a liquid diluent, an optional coupling agent and a solid diluent, Cole '785 is directed to the sealing of well bores penetrating subterranean formations through which liquid waste is injected. (Col. 1, lines 13-68). In this regard, Cole '785 discloses that

“Some of the liquid waste which is disposed of in subterranean formations is corrosive to the steel and the hydraulic cement which has historically been used in the completion of well bores penetrating subterranean formations. . . . Well bores through which liquid waste is injected into subterranean formations should be completed with materials which will not be corroded by flowing the liquid waste through the well bore. Epoxy resin has been found to be resistant to degradation by liquid waste containing many inorganic compounds.” (Col. 1, lines 21-25 and 36-41).

Moreover, Cole '785 discloses particular ranges of concentrations for the components of the epoxy resin compositions and states that:

“Other compositions employing the same constituents at concentrations outside the ranges . . . identified have been found either to exhibit significant cracking when cured under and exposed to the conditions which exist in the sealing of a subterranean formation or to have a viscosity or texture such that the composition cannot be properly placed within a desired location in a subterranean formation and therefore are not useful to isolate various zones penetrated by the well bore.” (Col. 5, lines 26-34).

Furthermore, Cole '785 does not disclose or suggest that heating an epoxy resin containing sealing composition above the temperature existing within the well bore or resulting from the epoxy curing reaction will accelerate the setting thereof. In fact, since Cole '785 discloses epoxy resin containing sealing compositions that are specially designed for reducing

stress related cracking after setting and that other compositions having the same constituents but different concentrations thereof exhibit significant cracking, Cole '785 teaches away from a method such as the method of claim 9, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a sealing composition at the location of the heating tool. Consequently, one of ordinary skill in the art would not be motivated to place a heating tool in casing containing the compositions according to Cole '785 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool. One of ordinary skill in the art would also not be motivated to combine the epoxy resin sealant containing compositions disclosed by Cole '785 with the hydraulic cement containing sealing compositions disclosed by Morris '816.

To sustain the present rejection of claims 9, 10 and 23 under 35 U.S.C. § 103(a), a *prima facie* case of obviousness must be established. MPEP § 2142 provides that a *prima facie* case of obviousness requires three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all of the claim limitations. In the present case, none of the criteria set forth in MPEP § 2142 have been satisfied with respect to independent claim 9, nor the claims dependent thereon.

1. There is no suggestion or motivation to modify the references or to combine reference teachings.

As discussed above, Morris '816 describes a method of cementing well casing with a liquid sealing composition. Morris '816 teaches that the setting of a hydraulic cement sealing composition can be accelerated by heating the composition and that the setting of a resin-containing or non-cementitious sealing composition can be accelerated by irradiating the composition with gamma radiation. Morris '816 does not disclose or suggest preparing a sealing composition that includes an epoxy liquid comprising resin, associated hardener and inert filler material and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of an epoxy liquid-containing sealing composition at the location of the heating tool. Indeed, consistent with the disclosure of Morris '816, one of ordinary skill in the art would be

motivated to irradiate an epoxy liquid-containing sealing composition to accelerate the setting thereof.

Cole '785 describes a method of sealing conduit within a subterranean formation using an epoxy resin composition in which the epoxy resin composition is heated by the subterranean formation and the curing reaction to a temperature above 140°F. at which temperature the composition begins more active polymerization. Cole '785 does not disclose or suggest preparing an epoxy resin-containing sealing composition and placing a heating tool in casing and operating the heating tool to heat and accelerate the setting of such a sealing composition at the location of the heating tool. Instead, the compositions described by Cole '785 are specially designed to overcome the problem of stress related cracking of sealing compositions in connection with the completion of well bores penetrating subterranean formations in which liquid waste is to be disposed. Since Cole '785 discloses epoxy resin-containing sealing compositions that are specially designed for reducing stress related cracking after setting and that other compositions having the same constituents but different concentrations thereof exhibit significant cracking, Cole '785 teaches away from a method such as the method of claim 9, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a sealing composition at the location of the heating tool. Consequently, one of ordinary skill in the art would not be motivated to place a heating tool in casing containing the compositions according to Cole '785 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool.

Moreover, there is no suggestion or motivation to combine the disclosures of Morris '816 and Cole '785. As noted above, Cole '785 teaches away from a method such as the method of claim 9, in which a heating tool is placed in casing and operated to heat and accelerate the setting of a sealing composition at the location of the heating tool. Consequently, one of ordinary skill in the art would not be motivated to place a heating tool in casing containing the compositions according to Cole '785 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool. In addition, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition, such as

an epoxy resin-containing sealing composition can be accelerated by irradiating the composition with gamma radiation rather than by operating a heating tool to heat the sealing composition.

Accordingly, one of ordinary skill in the art would not be motivated to combine Morris '816 and Cole '785. Yet, even if such a combination could be made, the result would not be the subject matter of any of claims 9, 10 or 23.

2. *There is no reasonable expectation of success.*

As noted above, Cole '785 teaches away from a method such as the method of claim 9, in which a heating tool is placed in casing and operated to heat and accelerate the setting of an epoxy resin-containing composition at the location of the heating tool. Consequently, one of ordinary skill in the art would not expect that placing a heating tool in casing containing the compositions according to Cole '785 and operating the heating tool to heat and accelerate the setting of the compositions at the location of the heating tool would be successful. In addition, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition, such as an epoxy resin-containing sealing composition can be accelerated by irradiating the composition with gamma radiation rather than by operating a heating tool to heat the sealing composition. Accordingly, one of ordinary skill in the art would not expect that operating a heating tool to heat an epoxy resin-containing sealing composition would be successful.

3. *The prior art references do not teach or suggest all the claim limitations.*

Neither Morris '816 nor Cole '785, alone or in combination, discloses, motivates or suggests each and every element of any of claims 9, 10 and 23.

None of claims 9, 10 and 23 have been rejected under any provision of 35 USC § 102 over Morris '816 or Cole '785. Thus, it appears that the Examiner would be in agreement that neither Morris '816 nor Cole '785 alone discloses, motivates or suggests each and every element of the rejected claims. Accordingly, the third criteria of a *prima facie* case of obviousness can only be satisfied if a combination of Morris '816 and Cole '785 would disclose, motivate or suggest all of the limitations of the presently rejected claims.

However, as discussed above, there is no motivation or suggestion for combining the disclosures of Morris '816 and Cole '785. Furthermore, Applicants submit that even if

motivation or suggestion could be found for combining the disclosures of Morris '816 and Cole '785, the resulting combination would not disclose, motivate or suggest each and every element of claims 9, 10 and 23.

For example, a combination of Morris '816 and Cole '785 would not disclose, motivate or suggest the method of claim 9, in which a heating tool is placed in casing and operated to heat and accelerate the setting of an epoxy resin-containing sealing composition at the location of the heating tool. Cole '785 discloses epoxy resin-containing sealing compositions that are specially designed for reducing stress related cracking after setting and one of ordinary skill in the art would not be motivated to further heat such compositions by placing a heating tool in casing containing the compositions and operating the heating tool to accelerate the setting of the compositions. In addition, Morris '816 teaches that while the setting of a hydraulic cement-containing sealing composition can be accelerated by heating the composition, the setting of a resin-containing or non-cementitious sealing composition, such as an epoxy resin-containing sealing composition can be accelerated by irradiating the composition with gamma radiation rather than by operating a heating tool to heat the sealing composition.

Accordingly, even if a combination of Morris '816 and Cole '785 were possible, the resulting combination would not disclose, motivate or suggest the method of claim 9, in which a heating tool is placed in casing and operated to heat and accelerate the setting of an epoxy resin-containing sealing composition at the location of the heating tool.

In view of the foregoing, Applicants submit that Morris '816 and Cole '785, either alone or in combination, fail to satisfy each of the three requirements of a prima facie case of obviousness. Failure to satisfy even one of the requirements negates the prima facie case. Accordingly, Applicants submit that the rejection of claims 9, 10 and 23 under 35 U.S.C. § 103(a) over Morris '816 and Cole '785 is improper and should be withdrawn.

Claims 8, 11, 12 and 24-28 stand rejected under 35 U.S.C. §103(a) over Morris '816 in view of Brothers '577 or Cole '785 as applied to claim 3 or 9, and further in view of U.S. Patent No. 6,330,917 to Chatterji et al. ("Chatterji '917"). This rejection is respectfully traversed.

Claims 8, 11 and 12 depend indirectly from claim 1 and therefore include at least the same elements as claim 1. Thus, claims 8, 11 and 12 are directed to a method for sealing casing

in a borehole that includes preparing a sealing composition comprising a latex sealant selected from styrene butadiene copolymer latex, styrene butadiene acrylonitrile copolymer latex, vinyl acetate homopolymer latex, vinyl acetate acrylate copolymer latex, carboxylated styrene-butadiene copolymer latex, carboxylated acrylic copolymer latex and nitrile latex; placing the sealing composition between the casing and the borehole; placing a heating tool in the casing; and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition.

Claims 24-28 depend indirectly from claim 9 and therefore include at least the same elements as claim 9. Thus, claims 24-28 are directed to a method for sealing casing in a borehole that includes preparing a sealing composition comprising an epoxy liquid comprising resin, associated hardener and inert filler material; placing the sealing composition between the casing and the borehole; placing a heating tool in the casing; and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition.

Chatterji '917 describes compositions and methods for cementing pipe in well bores. The compositions include hydraulic cement, an aqueous rubber latex, an aqueous rubber latex stabilizing surfactant, an epoxy resin, an epoxy resin hardening agent and porous precipitated silica which has been hydrophobicized with silicone oil. (Col. 2, line 66 to col. 3, line 2). Chatterji '917, however, does not disclose or suggest preparing a sealing composition that includes one or both of a latex sealant and an epoxy resin and placing a heating tool in casing and operating the heating tool to heat a sealing composition at the location of the heating tool to accelerate the setting of the sealing composition. Accordingly, Chatterji '917 does not supply the above-noted deficiencies of Morris '816 and Brothers '577 with respect to the subject matter of claim 1 or the above-noted deficiencies of Morris '816 and Cole '785 with respect to the subject matter of claim 9.

Therefore, contrary to the method of claim 1, the combination of the disclosure of Chatterji '917 with Morris '816 and Brothers '577 would still fail to disclose or suggest a method for sealing casing in a borehole which includes preparing a sealing composition comprising a latex sealant selected from styrene butadiene copolymer latex, styrene butadiene acrylonitrile copolymer latex, vinyl acetate homopolymer latex, vinyl acetate acrylate copolymer latex,

carboxylated styrene-butadiene copolymer latex, carboxylated acrylic copolymer latex and nitrile latex; placing the sealing composition between the casing and the borehole; placing a heating tool in the casing; and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition. Accordingly, even if Chatterji '917 was properly combinable with Morris '816 and Brothers '577, the combination would not result in the disclosure, motivation or suggestion of the method of claim 1.

Similarly, contrary to the method of claim 9, the combination of the disclosure of Chatterji '917 with Morris '816 and Cole '785 would still fail to disclose or suggest a method for sealing casing in a borehole that includes preparing a sealing composition comprising an epoxy liquid comprising resin, associated hardener and inert filler material; placing the sealing composition between the casing and the borehole; placing a heating tool in the casing; and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition. Accordingly, even if Chatterji '917 was properly combinable with Morris '816 and Cole '785, the combination would not result in the disclosure, motivation or suggestion of the method of claim 9.

As noted above, MPEP § 2143 provides that “[t]o establish a prima facie case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations.” Furthermore, under MPEP § 2142, “[i]f the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness.” It is submitted that the Office action does not factually support a prima facie case of obviousness of claims 8, 11 or 12 based on Morris '816 in view of Brothers '577 and further in view of Chatterji '917 or claims 24-28 based on Morris '816 in view of Brothers '577 and further in view of Chatterji '917 for the following reasons.

Chatterji '917 fails to supply the deficiencies of Morris '816 and Brothers '577 with respect to claims 8, 11 and 12 or the deficiencies of Morris '816 and Cole '785 with respect to claims 24-28. While Chatterji '917 discloses compositions and methods for cementing pipe in well bores, the combination of such compositions and methods with the disclosures of Morris '816 and Brothers '577 or Cole '785 fails to meet the standard presented by MPEP § 2143 which, as stated above, requires that the combined prior art references must teach or suggest all the claim limitations to establish a prima facie case of obviousness. For example, Chatterji '917 also

fails to teach or suggest preparing a sealing composition that includes a latex sealant or an epoxy resin and placing a heating tool in casing and operating the heating tool to heat the sealing composition at the location of the heating tool to accelerate the setting of the sealing composition.

Clearly, the combination of Morris '816 and Brothers '577 with Chatterji '917 fails to disclose or suggest all the elements of claim 1. Since claims 8, 11 and 12 depend from and include the subject matter of claim 1, the combination of Morris '816 and Brothers '577 with Chatterji '917 fails to disclose or suggest all the elements of claims 8, 11 and 12.

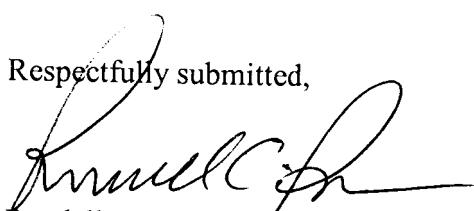
Also, the combination of Morris '816 and Cole '785 with Chatterji '917 fails to disclose or suggest all the elements of claim 9. Since claims 24-28 depend from and include the subject matter of claim 9, the combination of Morris '816 and Cole '785 with Chatterji '917 fails to disclose or suggest all the elements of claims 24-28.

In view of the foregoing, Applicants submit that Morris '816 in view of Brothers '577 or Cole '785 and further in view of Chatterji '917, fail to satisfy each of the three requirements of a *prima facie* case of obviousness. Failure to satisfy even one of the requirements negates the *prima facie* case. Accordingly, Applicants submit that the rejection of claims 8, 11, 12 and 24-28 under 35 U.S.C. §103(a) over Morris '816 in view of Brothers '577 or Cole '785 and further in view of Chatterji '917 is improper and should be withdrawn.

C. Conclusion

It is believed that all matters set forth in the Office action have been addressed. Favorable consideration and allowance of claims 1-6, 8-12 and 23-28 are respectfully requested. Should the Examiner deem that an interview with Applicants' undersigned attorney would expedite consideration of claims 1-6, 8-12 and 23-28, the Examiner is invited to call the undersigned attorney at the telephone number indicated below.

Respectfully submitted,



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